

**CLASTRIEROMYIA, A NEW NEOTROPICAL GENUS OF PREDACEOUS  
MIDGES RELATED TO *PALPOMYIA* AND *BEZZIA*  
(DIPTERA: CERATOPOGONIDAE)**

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*Abstract.*—*Clastrieromyia*, a new neotropical genus of predaceous midges related to *Palpomyia* and *Bezzia* is described and illustrated from female specimens. Males and immature stages are unknown. This new genus includes two new species, *schnecki* from Ecuador as type-species, and *kremeri* from Brazil.

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All of the genera of the predaceous midge tribe Palpomyiini inhabiting North and South America have recently been reviewed: Dow and Turner (1976), Wirth (1983a, 1983b), Wirth and Grogan (1983), and Wirth et al. (1984) on *Bezzia*; Grogan and Wirth (1979) on *Palpomyia*; Grogan and Wirth (1980) on *Pachyhelea*; Wirth and Grogan (1982) on *Phaenobezzia*; and a new genus, *Amerohelea*, was recently described by Grogan and Wirth (1981). In addition, the senior author and Willis W. Wirth have nearly completed a review of the neotropical *Bezzia* and the present authors are engaged in a study of the neotropical *Palpomyia*.

During the present study of the neotropical *Bezzia* and *Palpomyia* in the collection of the National Museum of Natural History, Washington, D.C., we encountered two undescribed species from Ecuador and Brazil that cannot be placed in any of the ceratopogonid genera in the tribe Palpomyiini. Because they possess a combination of characters and some new characters not present in any of the other Palpomyiini genera we propose a new genus for them in this paper.

For an explanation of general ceratopogonid terminology see Downes and Wirth (1981); for special terms dealing with genera in the tribe Palpomyiini, see Grogan and Wirth (1979, 1981).

The holotypes of the two new species are deposited in the collection of the National Museum of Natural History (USNM), in Washington, D.C. Paratypes will be deposited in the Canadian National Collection, Ottawa; British Museum (Natural History), London; Museum National d'Histoire Naturelle, Paris; Museo de La Plata, La Plata, Argentina; the Museu de Zoologia da Universidade de Sao Paulo, Brazil; the California Academy of Science, San Francisco; and the Florida Collection of Arthropods, Gainesville.

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### *Clastrieromyia* Spinelli and Grogan, NEW GENUS

Type-species, *Clastrieromyia schnacki* Spinelli and Grogan, by present designation.

Diagnosis.—A genus of medium sized predaceous midges of the tribe Palpomyiini distinguished from all other ceratopogonid genera by the following combination of characters: Wing with two radial cells, the second 3.7–4.4 times longer than the first, arcuate distally and extending 0.92–0.98 of wing length; media barely sessile, forking at r-m crossvein; anal lobe broad and angulate; cell  $R_5$  with intercalary vein. Scutum without anterior spine or tubercle. Fourth tarsomeres subcylindrical, not cordate. Claws equal, without basal inner teeth. Abdomen of female with only a single pair of gland rods arising mesally from the posterior margin of sternite 6 and extending to the anterior margin of sternite 6; 2 spermathecae with minute hyaline perforations; sternite 10 with a single pair of large setae at posterior margin. Palpus very short, barely extending beyond tip of proboscis. Flagellum of antenna short, 1.2–1.3 times longer than breadth of head. Male and immature stages unknown.

Comparison with other genera.—The most unique and distinctive characters of *Clastrieromyia* that distinguish it from other Palpomyiini genera are to be found in its wing. The barely sessile media that forks at the r-m crossvein is identical to the barely sessile media of many groups of *Bezzia* Kieffer, i.e., the *bivittata* group. However, the wings of all species of *Bezzia* differ from those of *Clastrieromyia* in having a single radial cell, a gently rounded anal lobe and lacking an intercalary vein in cell  $R_5$  (Dow and Turner, 1976; Wirth and Grogan, 1983).

The wing of *Palpomyia* Meigen and *Pachyhelea* Wirth are similar to *Clastrieromyia* in possessing two radial cells, and in fact some of the species in the *tibialis* group of *Palpomyia* have a long second radial cell that extends beyond 0.9 of wing length, for example *P. subaspera* (Coquillett), and *P. aspina* Grogan and Wirth. However, the wings of *Pachyhelea* and all species of *Palpomyia* differ from those of *Clastrieromyia* in having a broadly sessile M (Grogan and Wirth, 1979, 1980).

All species of the recently described New World genus *Amerohelea* Grogan and Wirth possess only a single pair of gland rods in the female abdomen, but these gland rods differ from those of *Clastrieromyia* in arising from the lateral margins of sternite 6 and extending more than one segment in length. *Amerohelea* also differs from *Clastrieromyia* in having a single spermatheca, a wing with a broadly sessile media, a gently rounded anal lobe, shorter costal ratio and lacking an intercalary vein in cell  $R_5$  (Grogan and Wirth, 1981).

*Phaenobezzia* Haeselbarth differs from *Clastrieromyia* in possessing a wing with a single radial cell, a broadly sessile M, a gently rounded anal lobe and lacking an intercalary vein in cell  $R_5$  (Wirth and Grogan, 1982).

The subcylindrical fourth tarsomeres of *Clastrieromyia* further serve to distinguish it from the above mentioned genera in the Palpomyiini, all females of which have cordate fourth tarsomeres.

Etymology.—The genus is named in honor of our good friend and colleague Dr. Jean Clastrier of the Laboratoire d'Entomologie, Muséum National d'Histoire Naturelle, Paris, France. His excellent illustrations and descriptions of palearctic *Palpomyia* (Clastrier, 1962) proved invaluable to one of us (WLG) during an earlier study of the nearctic species of that genus.

*Clastrieromyia schnacki* Spinelli and Grogan, NEW SPECIES

Fig. 1

Diagnosis.—Distinguished from its only known congener *C. kremeri* n. sp., by its non-spinose fore femur, smaller size (wing length 1.36–1.42 mm), longer second radial cell (extending 0.98 of wing length), and smaller antennal ratio (1.06–1.11). *C. kremeri* differs from *C. schnacki* in having a spinose fore femur, larger size (wing length 1.55–1.65 mm), shorter second radial cell (extending 0.92–0.96 of wing length), and larger antennal ratio (1.29–1.46).

Female.—Wing length 1.38 (1.36–1.42, n = 5) mm; breadth 0.58 (0.56–0.62, n = 5) mm.

*Head*: Dark brown. Eyes bare, broadly separated (Fig. 1c) for a distance equal to the diameter of 3.5 ommatidial facets. Antennal flagellum (Fig. 1a) short, uniformly dark brown; lengths of flagellomeres in proportion of 25-14-13-13-13-13-13-14-23-25-24-25-34; antennal ratio 1.08 (1.06–1.11, n = 5). Palpus very short (Fig. 1b), dark brown, apices of segments whitish; lengths of segments in proportion of 8-15-13-12-11; palpal ratio 1.45 (n = 5); third segment with a few scattered mesoapical sensilla. Mandible (Fig. 1d) with 8 large coarse teeth.

*Thorax*: Uniformly dark brown; scutum without anterior spine or tubercle. Legs (Fig. 1f) slender, uniformly dark brown, except tarsomeres 1 and 2 (Fig. 1g) of mid and hindlegs yellowish brown; ventral palisade setae absent on fore and mid tarsi (Fig. 1g), in one row on basitarsus and distal ½ of tarsomere 2 of hindleg; a pair of strong ventral spines at apices of first three tarsomeres on midleg, smaller and paler on fore and hindlegs; hindtibial comb with 5 spines; hindtarsal ratio 2.35 (2.30–2.40, n = 5); fourth tarsomeres (Fig. 1h) subcylindrical; fifth tarsomeres (Fig. 1g) unarmed; claws equal (Fig. 1g, h), without internal basal tooth, longest on hindleg (Fig. 1h). Wing (Fig. 1e) whitish hyaline, anterior veins brownish, the others nearly imperceptible; 2 radial cells present, the 2nd very long and arcuate and extending nearly to wing tip; media just barely sessile, forking at r-m crossvein; cell R<sub>5</sub> with posterior branch of intercalary fork; anal lobe very well developed, broad and angulate; costal ratio 0.98 (n = 5). Halter pale brown.

*Abdomen*: (Fig. 1i) Dark brown, tapering abruptly distally. One pair of gland rods arising mesally from posterior margin of sternite 6 and extending only to anterior margin of sternite 6; sternites 8 and 9 as in *C. kremeri* (Fig. 2f); sternite 10 with a single pair of large setae as in *C. kremeri* (Fig. 2f). Two spermathecae (Fig. 1j) slightly unequal, the larger spheroid, the smaller ovoid with short necks and minute hyaline perforations, measuring 0.050 mm by 0.040 mm, and 0.045 mm by 0.035 mm including necks; a small vestigial third spermatheca present.

Male.—Unknown.

Distribution.—Ecuador.

Types.—Holotype female, Ecuador, Napo Prov., 20 km. W. Cuyabeno, 24-IV-1976, J. Cohen, light (Deposited in USNM). Paratypes, 29 females, as follows:

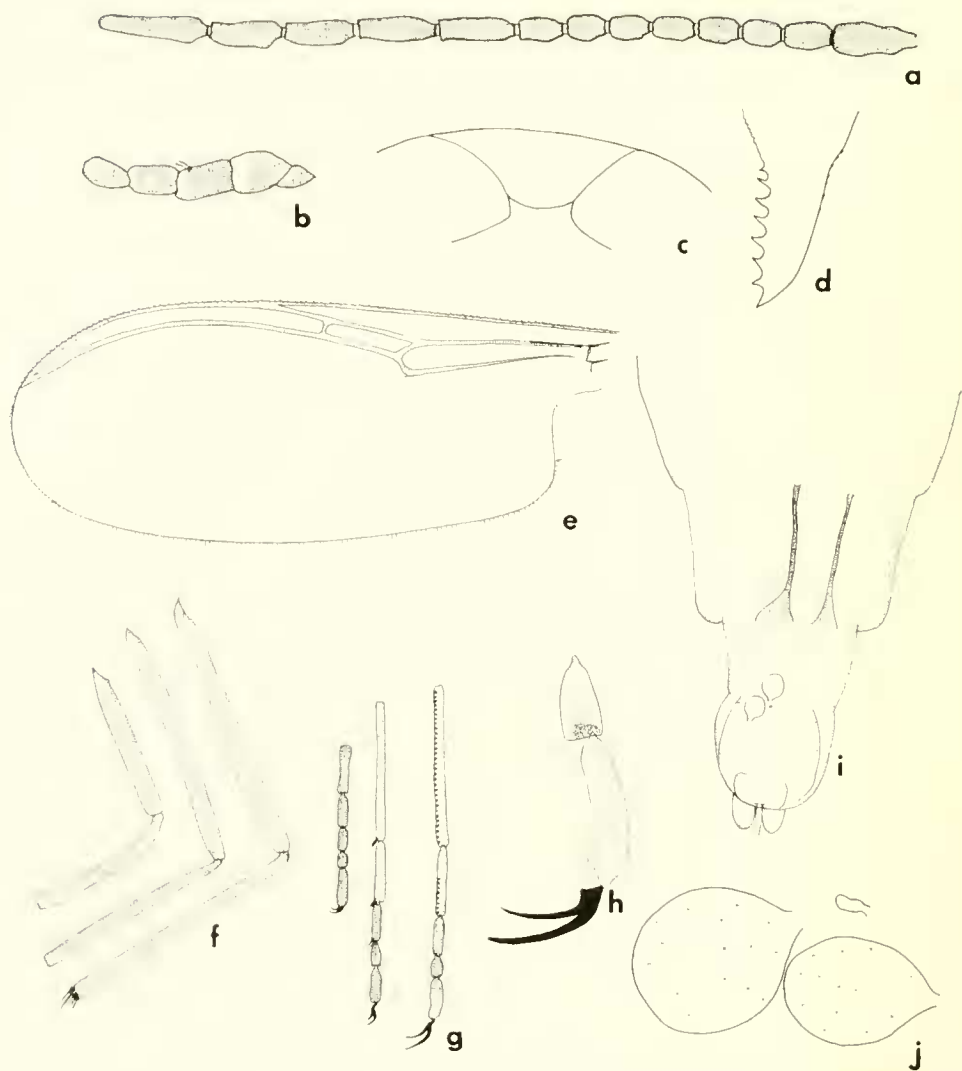


Fig. 1. *Clastrieromyia schnacki*, female. a, Flagellum. b, Palpus. c, Eye separation. d, Mandible. e, Wing. f, Femora and tibiae, from left to right fore, mid, and hindlegs. g, Tarsi, from left to right fore, mid, and hind tarsi. h, Hind fourth and fifth tarsomeres and claws. i, Abdomen. j, Spermathecae.

ECUADOR: same data as type, 15 females; Napo, Limoncocha, 15-VI-1977, P. J. Spangler and D. R. Givens, 14 females.

Discussion.—We are pleased to name this species in honor of Dr. Juan A. Schnack, Director of the Instituto de Limnología "Dr. Raul A. Ringuelet," La Plata, Argentina.

#### *Clastrieromyia kremeri* Spinelli and Grogan, NEW SPECIES

Fig. 2

Diagnosis.—Distinguished from its only known congener *C. schnacki* n. sp., by its spinose fore femur, larger size (wing length 1.55–1.65 mm), shorter second radial cell (extending 0.92–0.96 of wing length), and larger antennal ratio (1.29–

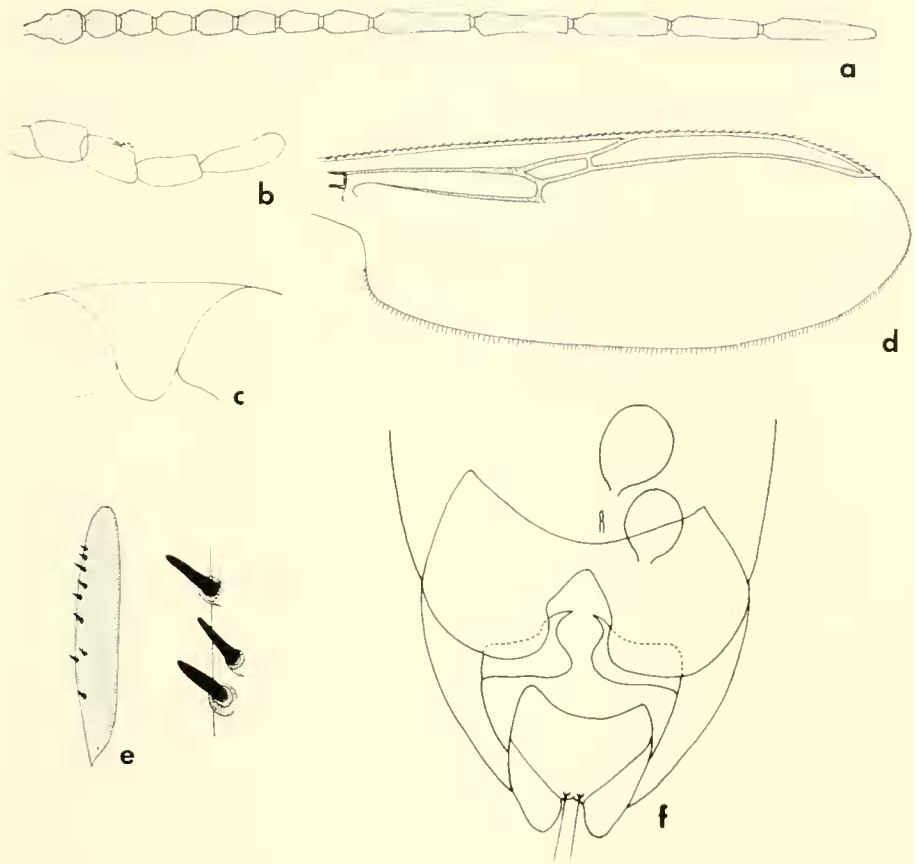


Fig. 2. *Clastrieroomyia kremeri*, female. a, Flagellum. b, Palpus. c, Eye separation. d, Wing. e, Fore femur and enlargement of spines of fore femur. f, Genitalia.

1.46). *C. schnacki* differs from *C. kremeri* in having a non-spinose fore femur, smaller size (wing length 1.36–1.42 mm), longer second radial cell (extending 0.98 of wing length), and smaller antennal ratio (1.06–1.11).

Female.—Wing length 1.60 (1.55–1.67,  $n = 5$ ) mm, breadth 0.63 (0.62–0.65,  $n = 5$ ) mm.

**Head:** Brown. Eyes bare, separated (Fig. 2c) for distance equal to the diameter of 2.5 ommatidial facets. Antennal flagellum (Fig. 2a) short, uniformly brown; lengths of flagellomeres in proportion of 21-12-13-13-14-14-14-16-34-34-34-32-41; antennal ratio 1.42 (1.29–1.46,  $n = 5$ ). Palpus short (Fig. 2b), uniformly pale brown; lengths of segments in proportion of 8-15-13-12-14; palpal ratio 1.70 (1.50–2.00,  $n = 5$ ); third segment with scattered mesoventral sensilla. Mandible with 9–11 large coarse teeth.

**Thorax:** Brown, scutellum slightly paler; scutum without anterior spine or tubercle. Legs slender, uniformly dark brown except tarsomeres 1 and 2 of mid and hindlegs yellowish; fore femur (Fig. 2e) armed with 6–10 ventral spines; ventral palisade setae absent on foretarsus, in one row on basitarsus of midleg, in two rows on tarsomeres 1 and 2 of hindleg; a pair of strong ventral spines at apices of first three tarsomeres on midleg, smaller and paler on fore and hindlegs; hind-



tibial comb with 5 spines; hindtarsal ratio 2.30 (2.10–2.55,  $n = 5$ ); fourth tarsomeres subcylindrical; claws equal without internal basal tooth, longest on hindleg. Wing (Fig. 2d) whitish hyaline, anterior veins pale yellow, the others nearly imperceptible; venation as figured, anal lobe very well developed, broad and angulate; cell  $R_5$  with intercalary vein; costal ratio 0.94 (0.92–0.96,  $n = 5$ ). Halter pale yellow.

*Abdomen*: Pale brown, tapering abruptly distally. One pair of gland rods, extending only to anterior margin of sternite 6 as in *C. schnacki* (Fig. 1i). Genitalia as Fig. 2f; sternite 8 concave on anterior margin, deeply notched posteriorly; sternite 9 with each arm pointed but well separated; sternite 10 with a single pair of large setae. Two oval spermathecae, unequal with short necks and minute hyaline perforations, measuring 0.069 mm by 0.055 mm, and 0.046 mm by 0.039 mm including necks; a small vestigial third spermatheca present.

Male.—Unknown.

Distribution.—Brazil (Amazonas).

Types.—Holotype female, Brazil, Amazonas, Rio Negro (Rio Itu), E. J. Fittkau, 11-II-1962, at light (Deposited in USNM). Paratypes, 15 females, as follows: same data as holotype, 13 females; same data except Rio Negro, 5-II-1962, 2 females.

Discussion.—We are pleased to name this new species in honor of Dr. Michel Kremer of the Institut de Parasitologie, Faculté de Médecine, Strasbourg, France.

#### LITERATURE CITED

- Clastrier, J. 1962. Notes sur les Cératopogonidés. XVII. Nouveaux *Palpomyia* Meig. et *Johannsenomyia* Mall. de la Région Paléarctique. Arch. Inst. Pasteur Alger, 40: 225–288.
- Dow, M. I., and E. C. Turner, Jr. 1976. A taxonomic revision of the Nearctic species of the genus *Bezzia* (Diptera: Ceratopogonidae). Va. Polytech. Inst. State Univ. Res. Div. Bull. 103: 1–162.
- Downes, J. A. and W. W. Wirth. 1981. Chapter 28. Ceratopogonidae. Pp. 393–421. In McAlpine, J. F. et al., eds., Manual of Nearctic Diptera. Vol. 1, Agric. Canada Monogr. 27. Ottawa. 674 pp.
- Grogan, W. L., Jr. and W. W. Wirth. 1979. The North American predaceous midges of the genus *Palpomyia* Meigen (Diptera: Ceratopogonidae). Mem. Entomol. Soc. Wash. 8: 1–125.
- . 1980. The taxonomic status of the predaceous midge *Pachyhelea pachymera* (Williston) (Diptera: Ceratopogonidae). Proc. Entomol. Soc. Wash. 82: 74–80.
- . 1981. A new American genus of predaceous midges related to *Palpomyia* and *Bezzia* (Diptera: Ceratopogonidae). Proc. Biol. Soc. Wash. 94: 1279–1305.
- Wirth, W. W. 1983a. A review of the North American predaceous midges of the *Bezzia nobilis* group (Diptera: Ceratopogonidae). Proc. Entomol. Soc. Wash. 85: 670–685.
- . 1983b. The North American species of the *cockerelli* and *dorsasetula* groups of the predaceous midge genus *Bezzia*, subgenus *Homobezzia* (Diptera: Ceratopogonidae). Proc. Entomol. Soc. Wash. 85: 762–782.
- Wirth, W. W. and W. L. Grogan, Jr. 1982. The predaceous midges of the genus *Phaenobezzia* in North America (Diptera: Ceratopogonidae). Mem. Entomol. Soc. Wash. 10: 179–192.
- . 1983. The Nearctic species of the *Bezzia bivittata* group (Diptera: Ceratopogonidae). Proc. Biol. Soc. Wash. 96: 489–523.
- Wirth, W. W., S. M. Palchick, and L. Forster. 1984. The North American predaceous midges of the *Bezzia annulipes* group (Diptera: Ceratopogonidae). Proc. Entomol. Soc. Wash. 86: 155–175.